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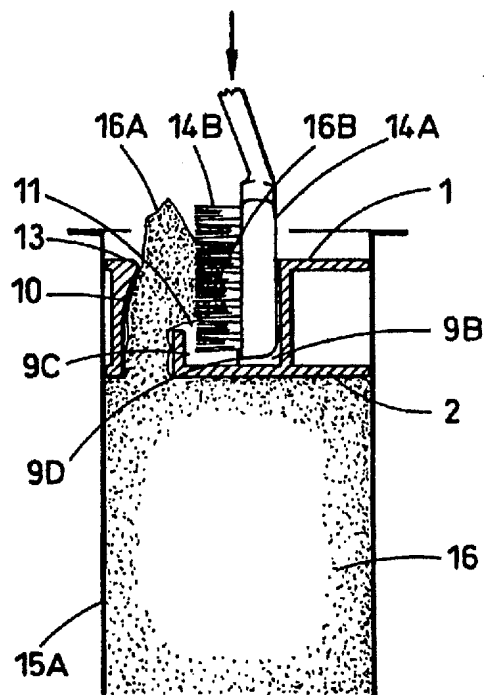
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(54) Title: CONTAINER DISPENSER FOR LIQUIDS

(57) Abstract

A container/dispenser for fluids comprises a vessel (15) having a base-wall and side-walls (15A), the side-walls at the inside of the vessel being substantially parallel, and, within the vessel, a longitudinally slideably moveable plunger of less depth than the container and having a lateral periphery fitting closely within the side-walls of the vessel, a socket (9) upwardly open at the upper face of the plunger, to receive one end portion of an applicator (14) for the fluid (16), and a channel (10) between the lower face of the plunger and the socket. The container/dispenser is particularly suited for dispensing toothpaste onto a toothbrush.



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**Container Dispenser For Liquids.**

The invention concerns container - dispensers for fluids, in particular for viscous fluid materials.

5 Many types of container - dispensers for fluids are known but, whilst these may be satisfactory for certain purposes, known container - dispensers for fluids are not entirely satisfactory for the controlled application of fluids to applicators e.g. brushes for applying the fluid to a place where it is ultimately desired to be.

10 Many viscous fluids, for example adhesives, food products, paints, cosmetics, toothpastes and gels etc., are supplied contained in container - dispensers from which they can be dispensed by extrusion through a nozzle on reduction of the containing volume of the container. Typical such container - dispensers include collapsible tubes, and pump dispensers in which the containing volume is reduced by movement of a slideable piston along the interior of a barrel. These latter two types of container -  
15 dispenser are frequently used for toothpastes.

An alternative type of container - dispenser is described in US 5078526, in the form of a cylindrical body which contains an extrudable toothpaste, and has a piston slideably located in the body. Downward movement of the piston causes toothpaste to be extruded through a conduit which passes through the piston and communicates  
20 with an upwardly extending dispensing boss having two dispensing ports.

A disadvantage of the above-mentioned container - dispensers, which extrude fluid through a nozzle or a port, is that by their dispensing operation the fluid is relatively loosely applied to a surface onto which the fluid is extruded. In the case of toothpastes for example, the toothpaste is loosely applied to the bristles of the  
25 toothbrush, so that there is a risk of the toothpaste falling off the toothbrush before the user has received the full benefit of its presence on the brush.

Furthermore, the container - dispenser of US 5078526 is unsuited for dispensing multi-phase toothpastes in which each phase is of a different colour to have a striped appearance on extrusion. The constricted conduit and ports of the  
30 container - dispenser of US 5078526 tend to disrupt the stripes of such toothpastes.

It is an object of this invention to provide a container - dispenser, which at least in part overcome the disadvantages of the container - dispensers discussed above, particularly for toothpastes.

35 According to the invention a container - dispenser for fluids comprises a vessel having a base-wall and side-walls, the side-walls at the inside of the vessel being substantially parallel, and, within the vessel, a longitudinally slideably moveable plunger of less depth than the container and having a lateral periphery fitting closely within the side-walls of the vessel, a socket, upwardly open at the upper face of the plunger, to receive one end portion of an applicator for the fluid and

a channel between the lower face of the plunger and the socket.

The term "fluid" herein is used to mean not only homogenous fluids but also such substances as pastes and other dispersions, emulsions and flowable gels, particularly highly viscous fluids, including pastes and gels. Examples of such fluids include, without limitation, tooth pastes or gels, fluids for domestic or industrial use e.g. paints, adhesives, lubricants, cleaning products such as soaps, abrasive or detergent pastes and gels etc., medicinal products such as creams and ointments etc., cosmetic products e.g. for use in hairdressing, and foods e.g. meat or fish pastes, confectionery products such as mousses, or "dips" etc.

10 A particular form of toothpaste is a multi-phase striped toothpaste in which the phases differ in colour, which may be contained within the vessel with each phase in adjacent segments in contact with each other, to form a striped appearance on extrusion. Other fluid materials of the above mentioned types, e.g. food products, may also be contained in the form of adjacent phases for example to have a striped appearance on being dispensed.

15 The term "applicator" herein is used to mean any device to which the fluid is intended to be applied for some subsequent further use. Examples of such applicators include, without limitation, brushes of any kind, e.g. toothbrushes or paint brushes, spreaders e.g. flexible plastics material spatulas, rollers, pads etc. In the case of fluids which are food products the applicator may itself be an edible product, for example of the nature of a biscuit or a vegetable or part thereof. The end portion of the applicator to be received in the socket may be hollow e.g. with a view to the fluid being discharged from the other end of the applicator when the applicator is used.

20 When the vessel of the container - dispenser contains, below the plunger, the fluid in question, depression of the plunger in the vessel by downward pressure, e.g. by the applicator having one end portion within the socket, results in a quantity of the fluid being displaced through the channel into the socket and thereby becoming applied to the end portion of the applicator in the socket. The downward pressure may readily be controlled, and thereby the container - dispenser according to the invention generally facilitates the controlled application of a fluid to an applicator and, in particular, reduces the risk of too little or too much fluid being applied and the risk of wastage. Moreover, the nature of the container - dispenser is such as to minimise the risk of spillage of the fluid.

25 When the vessel of the container - dispenser contains, below the plunger, the fluid in question, depression of the plunger in the vessel by downward pressure, e.g. by the applicator having one end portion within the socket, results in a quantity of the fluid being displaced through the channel into the socket and thereby becoming applied to the end portion of the applicator in the socket. The downward pressure may readily be controlled, and thereby the container - dispenser according to the invention generally facilitates the controlled application of a fluid to an applicator and, in particular, reduces the risk of too little or too much fluid being applied and the risk of wastage. Moreover, the nature of the container - dispenser is such as to minimise the risk of spillage of the fluid.

30 The vessel may suitably comprise a substantially longitudinally parallel-sided body having a cross section of any convenient shape, for example circular (ie a cylindrical body), oval, or polygonal, e.g. substantially square. Non-circular cross section bodies may be used to prevent the plunger from being rotatable within the vessel, if this is desired, for example to maintain a constant orientation of the plunger relative to the phases of a striped toothpaste within the vessel. The vessel normally

has an open end facing its base wall, through which the applicator may be inserted during use, and this open end may be sealed with a removeable closure, such as a tear-off foil cover or an end cap. The socket may additionally or alternatively be provided with a cover for just the socket, which may be replaceable.

5           The peripheral shape and dimensions of the plunger suitably correspond closely with the internal shape and dimensions of the vessel, at least in the region over which the plunger slides, so as to prevent leakage or contamination of fluid around the periphery of the plunger. Suitably the clearance between the plunger and the inside wall of the body should be small to help to prevent residual fluid being left  
10           on the side walls of the vessel behind the plunger as it slides, and the plunger may be provided with one or more wiper rings around its periphery. Suitably the plunger may have a substantially longitudinally parallel-sided periphery, e.g cylindrical, or alternatively it may comprise two or more longitudinally separated peripheral flanges or part flanges, so as to discourage rocking of the plunger as it slides along the body.

15           The bottom face of the plunger, i.e. which faces the base-wall of the vessel may be flat, or alternatively this face may be shaped to encourage and/or guide the flow of the fluid towards and through the channel during displacement thereof. This is particularly relevant in the case of striped toothpastes, so that the toothpaste may be displaced through the channel with minimal disruption of the arrangement of the  
20           phases and of the striped appearance of the displaced toothpaste. Suitably therefore the face of the plunger which faces the base-wall may be concavely shaped, e.g conical or frustro-conoidal, or hemispherical. The base-wall itself may be flat or shaped to mate with this face of the plunger, so as to ensure that the maximum proportion of contained fluid is displaced from the vessel.

25           The nature, position, size and shape of the socket and of the channel may be chosen to suit the applicator and fluid in question. The socket is generally an upward-facing recess opening upwardly out of the upper face of the plunger, and is suitably defined by socket-surrounding side walls surrounding the whole or part of the socket. The socket may be a recess within the general depth of the plunger or may extend  
30           within socket-surrounding walls which extent above the general upper face of the plunger. In some applications it may be desirable the socket should be positioned relative to the overall shape of the plunger such that when the applicator is inserted therein and downward pressure is applied to the applicator the downward force acts through the centre of gravity of the plunger so that minimal twisting moment is  
35           applied to the plunger, which might cause it to jam on sliding. Alternatively the plunger may be made of a shape and/or construction that minimises this likelihood.

          The size and shape of the socket should be such as to allow a sufficient length of the applicator to be inserted into the socket that a suitable quantity of the fluid is displaced onto the end portion of the applicator for the intended use.

The nature, position, size and shape of the channel will also depend upon the nature of the applicator and the fluid. If the fluid is to be applied to the lowermost face to the applicator, e.g. a brush having its bristles in line with the handle, the channel may open into the base of the socket. If the applicator is of the nature of a spatula or is a brush having lateral bristles, for example a toothbrush, the channel may open into one or more sides of the socket.

In the case of toothbrushes the socket is suitably of a size that is not much larger in overall volume than the head of the toothbrush and of a shape such that the head fits snugly within the socket, so that the head can be easily removed from the socket but whilst within the socket the head is loosely gripped by the adjacent sides of the socket, so that the head cannot wobble excessively. Generally toothbrush heads comprise a flat head base, integral with the handle, and from which the bristles project, the width of the head base being wider than the tuft of bristles, and the socket may suitably be of a size and shape to loosely grip the head base whilst the bristle tuft freely extends within the cavity, suitably into close proximity with the opening of the channel into the socket, but preventing the bristle tuft from actually coming into contact with the opening.

If the socket is of a size that is not much larger in overall volume than the head of the toothbrush, as mentioned above, the advantage may be achieved that toothpaste displaced through the channel into the socket is impregnated into the tuft of bristles of the toothbrush, rather than simply being loosely deposited on the surface, so that the toothpaste so applied is more strongly retained on the bristles, is less likely to fall off, and is more likely to remain on the tuft during toothbrushing.

For example in the case of a toothbrush the socket should be of a longitudinal depth sufficient to receive a major proportion, i.e. 50% or more of the length of the toothbrush head when the head is inserted into the socket. The depth to which the head of a toothbrush extends within the socket may have an influence on the way in which the toothpaste is deposited on the brush. If for example the toothpaste is a viscous paste such as a conventional toothpaste it is preferred however that the depth of the socket is less than the entire length of the head of the toothbrush, as it is found that when the depth of the socket is less than the length of the toothbrush head some of the toothpaste is impregnated into the bristle tuft, whilst some is also extruded onto the top surface of the bristle tuft, for example as the toothpaste emerges from the top end of the channel. It is considered by some consumers that this is a more attractive distribution of toothpaste. Suitably in such a case the depth of the socket is around 50 - 90% of the length of the toothbrush head.

When toothpastes which are of a more mobile nature than conventional pastes are used, e.g the so-called "liquid toothpaste" gels, are used with a toothbrush, then it is generally preferred that a substantial proportion of the toothpaste applied to the

brush is impregnated into the bristle tuft, with relatively little lying actually on the top surface of the tuft. In such a case, the depth of the socket may more closely approximate to the length of the toothbrush head, and may even be greater than the length of the toothbrush head.

5           In the case of toothbrushes the channel may be shaped and positioned relative to the socket such that toothpaste passing along the channel is directed towards the top surface of the tuft of bristles of a toothbrush inserted therein. This may for example be achieved by a channel which extends substantially longitudinally parallel to the depth direction of the socket, and has an upper opening into a side of the  
10 socket. The top end of such a channel may be wholly or partly closed so as to direct toothpaste sideways into the socket, suitably being arched over at the top in a curve to direct toothpaste smoothly in this direction.

Suitably if the toothpaste is a viscous paste such as a conventional toothpaste the top end of the channel may be completely open or only partly closed over so as to  
15 direct a proportion of the toothpaste into the tuft, allowing some to be deposited on the top surface of the tuft. With a "liquid toothpaste" the top end of the channel may be more completely, or wholly, closed over so that a larger proportion of the liquid toothpaste is impregnated into the tuft.

In particular, the size of the channel should be chosen having regard to the  
20 viscosity of the fluid. The shape of the channel along its length should be such that displaced fluid has an unobstructed passage through the channel, for example the channel may be substantially straight linear, or smoothly curved.

The upper opening from the channel into a side of the socket may be of any convenient shape, but it is preferred that the upper opening narrows towards the  
25 bottom of the socket, as this is found to assist in directing toothpaste towards the bristle tuft. The shape of this upper opening may suitably be a "T" shape with the stem of the T at the bottom of the opening, or alternatively a substantially "V" or "U" shape with the apex of the V or the bend of the U at the bottom of the opening.

Suitably the bottom of the upper opening into the side of the socket is above  
30 the bottom of the socket, so that when a toothbrush is in the socket, the extreme lower end of the head remains relatively free of toothpaste, so that these relatively clean bristles can wipe the region of the opening clean of toothpaste on withdrawal from the socket.

In the case of multi-phase striped toothpastes the lower opening of the channel  
35 from the bottom face of the plunger, i.e. through which the toothpaste enters the channel from the vessel beneath, is suitably located at a position that corresponds to the meeting point of the phases within the vessel, so that all of the phases are displaced in an appropriate ratio through the channel to form stripes. For example this lower opening can be located at a central position relative to the lower face of the

plunger.

Suitably the channel may taper in cross section from its bottom opening in the lower face of the plunger to its opening into the socket. The lower opening of the channel may open out into a funnel-shaped mouth, which for example may be in the form of an extension at the lower end of the channel. Such a mouth or extension may open out to occupy the whole width of the plunger, for example the extension may open out such that its perimeter contacts the wall of the container, and thereby may function as a flange. Such a mouth may serve to collect and guide fluid, e.g. toothpaste, from the vessel into the channel. Suitably such a mouth may serve to guide toothpaste into a channel which is located in a central or non-central position relative to the lower face of the plunger, and for example may be useful in guiding striped toothpaste comprising two or more phases into a non-centrally located channel.

The channel, and/or its opening into the socket, or an adjacent area of the plunger, may be made of a decorative shape to impart a corresponding shape to the fluid material when displaced, provided that the material is sufficiently stiff to retain such a shape.

The container - dispenser of this invention may be made of any of a variety of materials suited to the particular purpose but it is generally preferred that at least the plunger should be of a plastics material, as this assists making the plunger inexpensively, and the vessel can also be made of such materials. The plunger may be integrally made, or made in two or more parts, for example a part which generally forms the shape of the plunger, and an insert which defines all or part of the socket-surrounding walls. If the fluid is for internal consumption or toothpaste, food grade materials should be used for the container - dispenser and suitable plastics materials are readily available.

The invention also provides a method of dispensing a fluid material, which includes the step of displacing fluid from a container - dispenser as described above by means of downward pressure on an applicator as described above.

The invention also provides a process for manufacturing a container - dispenser for a fluid which includes the step of assembling and/or filling with a fluid, a vessel having a base-wall and side-walls, the side-walls at the inside of the vessel being substantially parallel, and, within the vessel, a longitudinally slideably moveable plunger of less depth than the container and having a lateral periphery fitting closely within the side-walls of the vessel, a socket, upwardly open at the upper face of the plunger, to receive one end portion of an applicator for the fluid and a channel between the lower face of the plunger and the socket.

The plunger of the container-dispenser of the invention is also believed to be a novel article, and as such forms a further aspect of this invention.



The invention is further described with reference to the accompanying drawings in which:

Figure 1 is a view of the top surface of a plunger of a container - dispenser according to the invention;

5        Figure 2 is a side view of the plunger of Figure 1;

Figure 3 is a view of the bottom surface of the plunger of Figure 1;

Figure 4 is a sectional view through the plunger of Figure 1 along the line A-A in Fig. 1;

10       Figure 5 is a sectional view through the plunger of Figure 1 along the line B-B in Fig. 1;

Figure 6 is a sectional view through the plunger of Figs. 1 to 5 along the line C-C of Fig 4;

Figure 7 is a view of the plunger of Figure 1 aligned above the vessel of the container - dispenser for insertion into that vessel;

15       Figure 8 is a sectional view as in Figure 5, showing the plunger in use to displace toothpaste onto a toothbrush;

Figure 9 is a longitudinal sectional view through an alternative type of plunger;

20       Figure 10 is a cross sectional view through the plunger of Figure 9 along the line D-D of Fig 9.

The plunger, moulded from plastics material, comprises upper 1 and lower 2 disc shaped flanges connected by upright walls 3, 4, 5, 6, 7 and 8, the location of which is shown by means of broken lines in the case of Figures 1, 2 and 3. The upper and lower faces of the flanges 1 and 2 are substantially flat. A socket 9 (generally), is  
25       formed as an upward-facing recess opening upwardly out of the upper face of the plunger, the base wall of the socket being provided by a portion of the lower flange 2, the upright walls 4, 6, 7 and 8 forming socket-surrounding side walls.

A channel 10, open at the lower face of the of the plunger leads to the socket 9. As best seen in Figure 3, at its lower opening 10A channel 10 has a generally oval  
30       cross-section but its cross-sectional area gradually decreases towards its upper end and its cross-sectional shape gradually changes to generally circular. The decreasing cross-section is of assistance for the ease of flow of the fluid to the socket particularly in the case of highly viscous fluids e.g. toothpaste. The channel 10 is substantially straight linear in its course. From the upper portion of the channel 10 there is an  
35       upper opening 11 into the socket 9 at one side and, combined with this, a top opening 12. In the region of the top opening 12 the wall 5 of the channel 10 arches over to assist in directing toothpaste passing therethrough sideways and in this arched region the channel is provided with chevron shaped inward projections 13 to impart a decorative shape to toothpaste passing therethrough. As shown in Fig. 6 the chevron

shaped projections 13 merge smoothly with the sides of the channel 10 to form the oval shape of the lower opening as shown in Fig 3.

The upper opening 11 into the socket 9 is substantially "T" shaped, as shown most clearly in Fig 4, the stem of the T being downward, and the bottom of the opening 11 is some distance above the bottom 9A of the socket 9.

The socket 9 is of a size and shape such that a toothbrush head 14 may be inserted therein, and the head base 14A thereof will be loosely retained by the wider part 9B of the socket 9, whilst the bristle tufts 14B extend freely into the narrower part 9C of socket 9.

As shown in Figs. 7 and 8 the plunger may be slideably inserted into a generally cylindrical vessel 15, containing in its lower part a fluid such as a toothpaste 16, with the periphery of each of the discs 1, 2 fitting closely within the side-walls 15A of the vessel. On placing the head of a toothbrush 14 in the socket 9 in the manner described above, and depressing the plunger within the vessel 15 containing toothpaste 16 in its lower part, the toothpaste is displaced from the lower part of the vessel through the channel 10 and applied to the bristles of the brush 14. By this means an appropriate amount of toothpaste 16 may readily be applied to the bristles of the brush 14.

This operation is more clearly shown in Fig 8. The toothbrush head 14 has been inserted into socket 9, such that the head base 14A fits loosely within the widened part 9B, and the tuft of bristles 14B extends freely within part 9C, whilst being restrained by the shoulder 9D between parts 9B and 9C. The toothbrush 14, and consequently the entire plunger, has been urged downwards in the direction of the arrow in Fig 8, causing toothpaste 16 to be displaced from vessel 15 along channel 10, through opening 11, and onto the bristles 14B. Whilst part of the displaced toothpaste 16A is deposited onto the top surface of the tuft 14B, the confined space of the socket 9 has caused part of the displaced toothpaste 16B to be impregnated deeply into the tuft 14B. The chevron shaped regions 13 impart a corresponding shape to the displaced toothpaste 16A.

As the bottom of the opening 11 is some distance above the base 9A of the socket 9, the extreme lower end of the tuft 14B remains substantially clean of toothpaste 16. On withdrawal of the toothbrush 14 from the socket 9, this clean part of the tuft 14B serves to wipe clean the region of the socket surrounding wall 8 around the opening 11.

Referring to Figs. 9 and 10, an alternative type of plunger comprises an upper disc shaped flange 21 and a lower part disc-shaped part flange 22, connected by upright walls 23, 24, 25, 26, 27. A socket 28 is formed as an upward-facing recess within an insert 29 which is a friction-fit between the walls 26, 27. A channel 30 is formed within the plunger between wall 25 and a wall 31 of the insert 29, being

centrally axially located within the plunger. An opening 32 into the side of the socket 28 is formed in the wall 31. The opening 32 is substantially "T" shaped and of similar shape to the corresponding opening 11 of the plunger of Figs 1 to 8.

5 The top opening 33 of the channel 30 is arched over, and the arched region is formed into chevron shaped regions of similar shape to the corresponding regions 13 of the plunger of Figs 1 to 8. The bottom opening of the channel 30 opens into a funnel shaped extension 35 which tapers from its lower mouth 35A toward the channel 30.

10 The shape of the socket 28 is generally similar to the socket 9 of Figs 1 to 8, i.e. having a wider part and a narrower part, capable of having a toothbrush head (not shown) inserted therein in a similar manner to the socket 9 of Figs 1 to 8.

The overall functioning of the plunger of Figs 9 and 10 with a toothpaste - containing vessel (not shown) is generally identical to that of Figs 1 to 8 above. The bottom of the vessel for use with this plunger suitably has a convex shape to mate  
15 with the concavity of the extension 35, to minimise dead space at the bottom of the vessel. The diameter of the flanges 21, 22 and the extension 35 is such that the plunger fits slideably with minimum clearance within the vessel. On urging the plunger of Figs. 9 and 10 downwards, toothpaste is gathered by the mouth 35A and guided through extension 35 into channel 30.

20 The plunger of Figs 9 and 10 is suited for use with striped toothpaste which is packed in side-by-side phases in the vessel, the phases meeting along the longitudinal axis of the vessel.

The entire vessel 15, the plunger, or just the socket 9 or 28 may be provided with a removeable cover or closure (not shown).

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## Claims.

1. A container-dispenser for fluids comprises a vessel having a base-wall and side-walls, the side-walls at the inside of the vessel being substantially parallel, and, within the vessel, a longitudinally slideably moveable plunger of less depth than the container and having a lateral periphery fitting closely within the side-walls of the vessel, a socket, upwardly open at the upper face of the plunger, to receive one end portion of an applicator for the fluid and a channel between the lower face of the plunger and the socket.
2. A container-dispenser according to claim 1 wherein the fluid material is selected from fluids for domestic or industrial uses, cleaning products, cosmetic products, and foods.
3. A container-dispenser according to claim 1 wherein the fluid material is selected from toothpastes or gels and medicinal products.
4. A container-dispenser according to claim 1, 2 or 3 wherein the applicator is selected from brushes of any kind, spreaders, rollers, pads and edible products.
5. A container-dispenser according to any one of the preceding claims wherein the end portion of the applicator to be received in the socket is hollow.
6. A container-dispenser according to any one of the preceding claims comprising two or more longitudinally separated peripheral flanges.
7. A container-dispenser according to any one of the preceding claims wherein the face of the plunger which faces the base-wall of the vessel is flat, or alternatively this face is shaped to encourage and/or guide the flow of the fluid towards and through the channel during displacement thereof.
8. A container-dispenser according to any one of claim 7 wherein the face of the plunger which faces the base-wall is concavely shaped.
9. A container-dispenser according to any one of the preceding claims wherein the socket is an upward-facing recess opening upwardly out of the upper face of the plunger, and is defined by socket-surrounding side walls surrounding the whole or part of the socket

10. A container -dispenser according to any one of the preceding claims wherein the applicator is a toothbrush, and the fluid material is toothpaste.
11. A container -dispenser according to claim 10 wherein the socket is suitably of a size that is not much larger in overall volume than the head of a toothbrush and of a shape such that the head fits snugly within the socket, so that the head can be easily removed from the socket but whilst within the socket the head is loosely gripped by the adjacent sides of the socket, so that the head cannot wobble excessively.
12. A container -dispenser according to claim 10 or 11 wherein the socket is of a longitudinal depth sufficient to receive 50% of the length or more, of a toothbrush head when the head is inserted into the vessel.
13. A container -dispenser according to claim 12 wherein the depth of the socket is 50 - 90% of the length of the toothbrush head.
14. A container -dispenser according to any one of the preceding claims wherein the channel extends substantially longitudinally parallel to the depth direction of the socket, and has an upper opening into a side of the socket.
15. A container -dispenser according to claim 14 wherein the upper opening from the channel into a side of the socket narrows towards the bottom of the socket.
16. A container -dispenser according to claim 15 wherein the upper opening is of a "T" shape with the stem of the T at the bottom of the opening.
17. A container -dispenser according to any one of claims 14 to 16 wherein the bottom of the upper opening into the side of the socket is above the bottom of the socket.
18. A container -dispenser according to any one of claims 14 to 17 wherein the top end of the channel is wholly or partly closed so as to direct fluid material sideways into the socket.
19. A container -dispenser according to claim 18 wherein the top end of the channel is arched over at the top in a curve to direct fluid material in this direction.
20. A container -dispenser according to any one of the preceding claims wherein the channel tapers in cross section from its bottom opening in the lower face of the

plunger to its opening into the socket.

21. A container -dispenser according to any claim 20 wherein the lower opening of the channel from the bottom face of the plunger opens out into a funnel-shaped mouth.
22. A container -dispenser according to claim 20 or 21 wherein the funnel shaped mouth is in the form of an extension at the lower end of the channel.
23. A container -dispenser according to any one of the preceding claims wherein the channel, and/or its opening into the socket, or an adjacent area of the plunger, is of a decorative shape to impart a corresponding shape to the fluid material when displaced.
24. A container -dispenser according to any one of the preceding claims substantially as hereinbefore described with reference to the accompanying drawings.
25. A method of dispensing a fluid material, which includes the step of displacing fluid from a container - dispenser as described above by means of downward pressure on an applicator according to any one of the preceding claims.
26. A process for manufacturing a container - dispenser for a fluid which includes the step of assembling and/or filling with a fluid, a vessel having a base-wall and side-walls, the side-walls at the inside of the vessel being substantially parallel, and, within the vessel, a longitudinally slideably moveable plunger of less depth than the container and having a lateral periphery fitting closely within the side-walls of the vessel, a socket, upwardly open at the upper face of the plunger, to receive one end portion of an applicator for the fluid and a channel between the lower face of the plunger and the socket.
27. A plunger suitable for use in a container-dispenser according to any one of claims 1 to 24, or in a process according to claim 25 or 26.

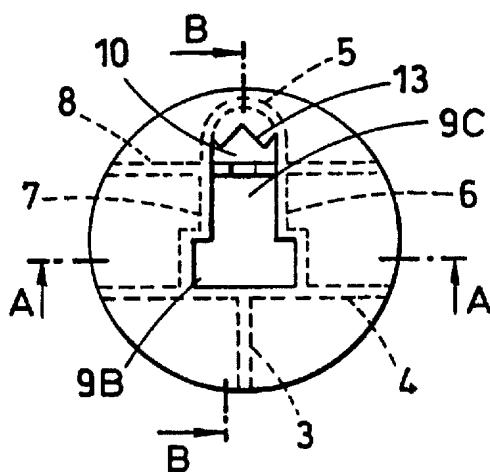


Fig. 1

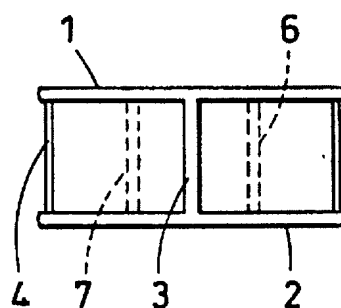


Fig. 2

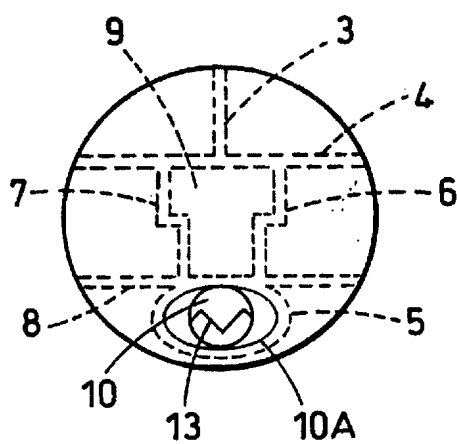


Fig. 3

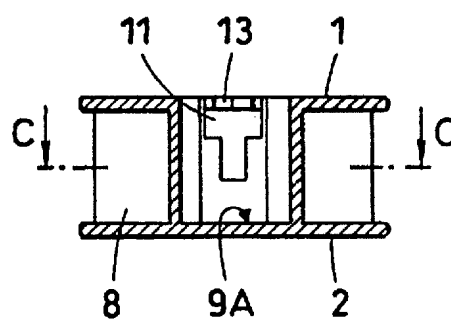


Fig. 4

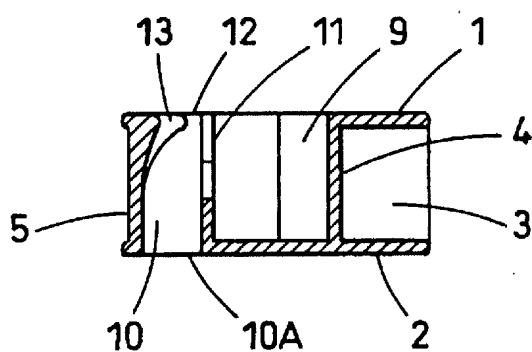


Fig. 5

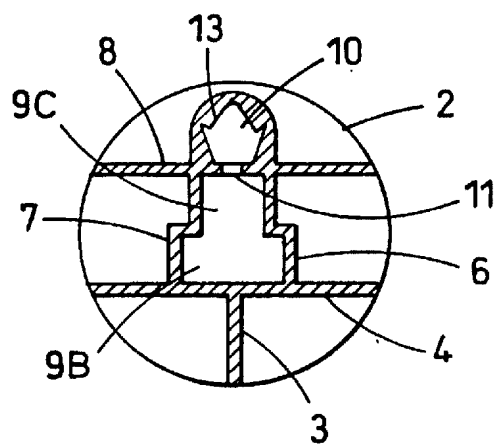


Fig. 6

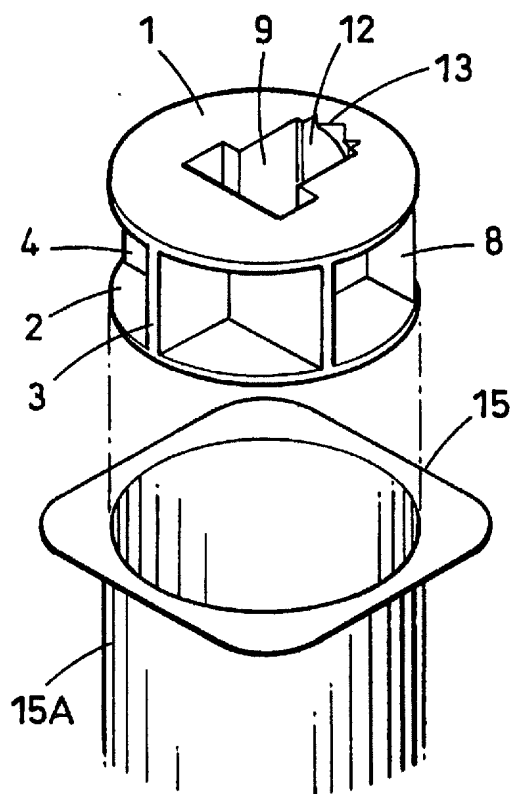


Fig. 7

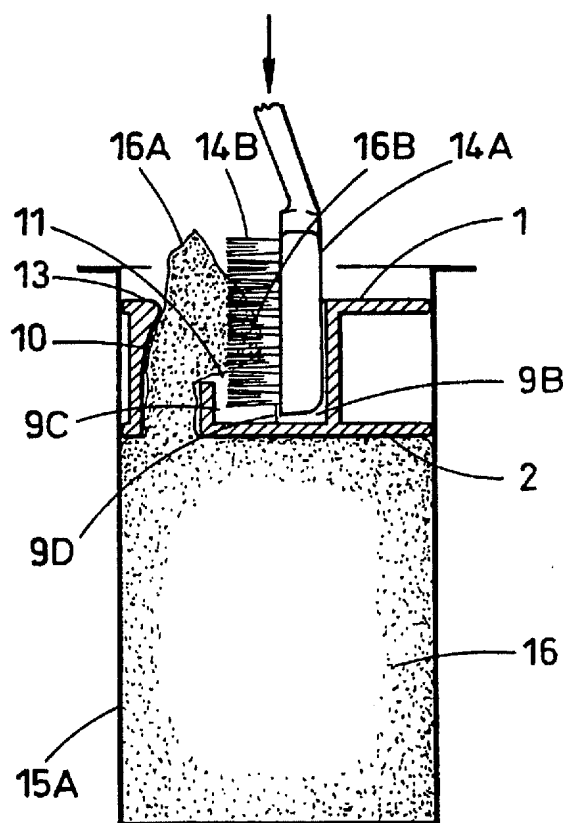


Fig. 8



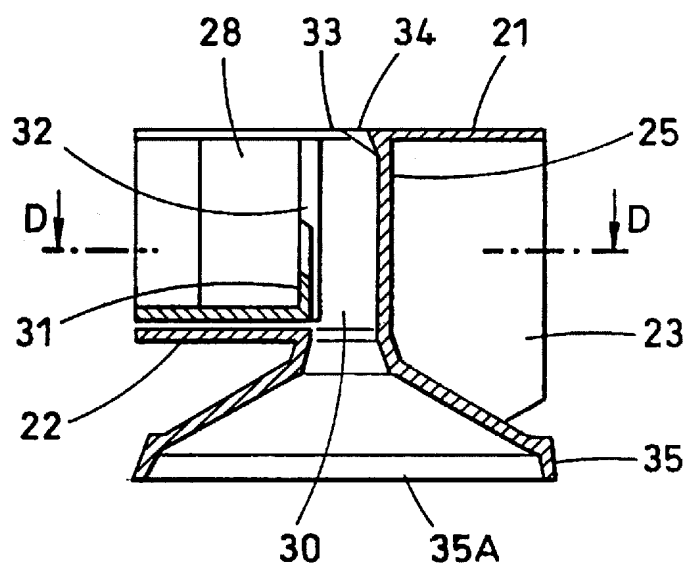


Fig. 9

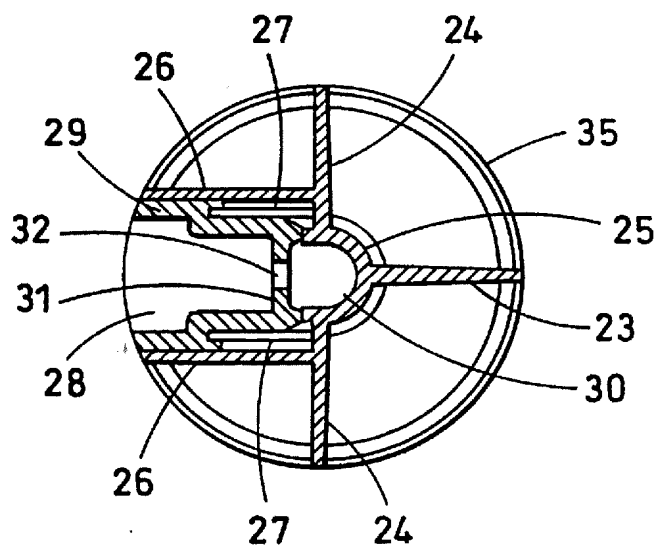


Fig. 10

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 94/00174

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 5 B65D83/00 A46B11/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 5 A45D B65D A46B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR,A,1 185 015 (MATTIOLI) 29 July 1959  see the whole document ---	1-7, 9-14, 17, 18, 20, 23-27
X	US,A,5 078 526 (CORONA) 7 January 1992 cited in the application  see column 4, line 1 - line 50; figures 3-5 ---	1-10, 17-19, 23-27
X	US,A,2 630 812 (DENDY) 10 March 1953  see column 2, line 33 - column 3, line 31; figures 1-5 --- -/-	1-11, 24-27

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

11 May 1994

Date of mailing of the international search report

01. 06. 94

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Authorized officer

Williams, M

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 94/00174

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US,A,3 563 414 (COULOMBE) 16 February 1971 see column 2, line 28 - column 3, line 19 see column 5, line 1 - line 20; figures 1-11,26-28 -----	11-13
A	FR,A,2 089 312 (CESARI) 7 January 1972 see figure 1 -----	15
A	FR,A,2 452 437 (WELLA) 24 October 1980 see page 5, line 33 - page 7, line 11; figures 4-6 -----	21,22
A	EP,A,0 336 916 (BIO-PAK ASSOCIATES) 11 October 1989 -----	

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Information on patent family members

International Application No

PCT/GB 94/00174

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US-A-3563414	16-02-71	NONE	
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		JP-A- 2098570	10-04-90